



Road mat density is everything

Ensuring road mat quality used to be an expensive proposition, but with drops in the cost of intelligent compaction technology to a fraction of what it was, contractors recently have a solid business case for adopting it.

In this edition of Experts Corner, we chatted with SMS Equipment Product Manager Garry Phenuff, a veteran road construction expert who supports our Bomag equipment products and technology.

One of the most common gripes of Canadian drivers is a seemingly growing number of potholes and mini-lakes in our roadways. "What's happening is that the roads are deteriorating," says Phenuff, "creating all kinds of lakes and potholes." Particularly aggravating is the frequent recurrence of potholes within a year or two of recent repair work.

"Density is everything for maintaining the integrity of the road," says Phenuff. Experts know that ensuring correct density is achieved by the operator understanding their progress during the compaction process. The stiffness of the mat is crucial to prevent rapid deterioration.

The good news is that the technology to ensure quality roads that last is readily available and affordable. Furthermore, improved user interfaces mean that the technology is easily accessible to operators with minimal training.

Intelligent compaction technology, Phenuff explains, gives the operator real-time feedback on the mat density during the compaction process. When used correctly, this not only ensures a longer-lasting road, but protects contractors against hidden cost liabilities such as callbacks and rework, over-compaction, penalties, and unearned bonuses.

Until recently, mat density was laborious and expensive to control. However, entry-level intelligent compaction options have enabled lower technology costs by 75% or more in the past few years. Furthermore, improved

user interfaces allow the technology to fit seamlessly within the operator control environment.

Many European countries universally use this technology, but adoption has lagged in North America. "Today, there's a lot of support for intelligent compaction technology," says Phenuff, "but have yet to see this technology within our local regions utilizing intelligent compaction to its full potential."

A modular approach

SMS Equipment sells and supports two products from Bomag that support intelligent compaction. The first is a lower-cost option on Bomag equipment called The Economizer. "This is standard on most compacting equipment we offer," says Phenuff. "The way The Economizer works is that it senses feedback from the vibrations generated in the compacting device and uses that data to determine the relative stiffness while forming the mat."



The Economizer measures the material stiffness and indicated the optimal condition

As the roller or plate compactor makes repeated passes over the mat, the deflection decreases until reaching the maximum stiffness. The Economizer also incorporates feedback from temperature sensors on the roller, indicating when the mat has cooled to the point where the operator should now shut off the vibration to prevent the mat from getting damaged.

In the cab, the Economizer display informs the operator of the relative stiffness of the mat with coloured LED lights. This option alone potentially allows the operator to reduce the number of passes.

BOMAP, another Bomag technology product, can also complement and significantly enhance the Economizer. BOMAP is a GPS mapping system that works interactively with the Economizer. It tracks the progress of the compacting device throughout the work area and displays it on a map on a screen in the cab. The colour of the mat changes with each pass, helping the operator understand and achieve the desired compaction. The operator can then choose the most efficient route, further preventing over compacting.

Shifting mindset to be technology-forward

Lower price and ease of use have made intelligent compaction a compelling opportunity for road builders. Improved job efficiency, low risk of callbacks, and higher customer satisfaction are solid reasons intelligent compaction makes good business sense.

Owners can influence a technology-forward mindset by prioritizing road density quality to help accelerate the transition, as some jurisdictions have done, providing bonuses after contractors have achieved the desired. The notion that these tools are a distraction from minimizing costs is antiquated. Instead, we need to foster a new culture that fully integrates technology into application.

There are signs that Canadian contractors are starting to make this shift. Phenuff sees encouraging behaviours through new equipment purchases that reflect the adoption of intelligent compaction technologies. Phenuff expects technology integration to continue as customers understand the benefits of the lower-cost option of intelligent technologies like the Economizer and BOMAP. Of course, the transition will take time, but Canadians can inevitably look

forward to fewer bumps in the road in the not-too-distant future.

Takeaways:

- Potholes and mini-lakes, the bane of Canadian drivers, are avoidable with better compacting.
- Intelligent compaction technology, which takes direct aim at this problem, has dropped significantly in price and is easy to use for operators.
- The Economizer, an equipment option from Bomag, measures feedback from compactor vibrations to determine the stiffness of the mat in real-time.
- Another Bomag product, BOMAP, provides a visual screen display showing the recorded stiffness of the mat throughout the work area.
- Both products give the operator colour-coded feedback on the compacting process.
- Technology prices have dropped more than 75% in the past few years.

Next Steps:

SMS Equipment supports both products across Canada and has manufacturer-certified support personnel on staff who provide operator training. Reach out to discuss options to help you get the most from road construction season.

